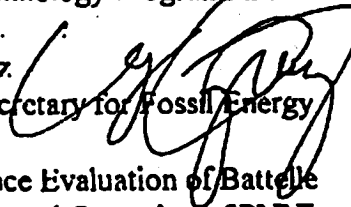




Department of Energy
Washington, DC 20585

Memorandum for: Deborah E. Trader, Director
RL Science and Technology Programs Division

From: Robert S. Kripowicz 
Acting Assistant Secretary for Fossil Energy

Subject: FY 2000 Performance Evaluation of Battelle
for the Management and Operation of PNNT.

Attached is the evaluation prepared by the Office of Fossil Energy covering the work and program support that PNNT performs for Fossil Energy. If you have any questions, please contact Marvin Singer, Senior Advisor and Director of Advanced Research in the Office of Fossil Energy, at 202-586-4332.

Program Area	Value Points Assigned to Each Adjective				Overall Program Score	Overall Program Weighted Average
	Research Quality	Relevance to Mission	Research Facilities	Research Management		
FE	5.0	4.8	4.5	4.8	19.1	

Research Quality: Investigators have made important contributions in identifying and solving materials issues that could directly impact the commercial development of gas separation membranes, solid oxide fuel cells (SOFCs), through the development of compatible electrolyte materials, electrodes and seals. Novel techniques to characterize electrode/electrolyte interfaces and thereby to identify aging reactions have led to an improved understanding long-term degradation issues for SOFCs.

Relevance to Mission: The research is contributing significantly to the goal of the Fossil Energy program in providing a materials technology base to assure the success of coal fuels and advanced power generation systems. The investigations are helping to develop the materials of construction, including processing and fabrication methods for functional materials necessary for those systems. The scope of the program addresses requirements for a number of fossil energy systems, including materials for advanced power generation technologies such as fuel cells.

The laboratory's activities help improve alignment with the development of those technologies that are potential elements of the DOE-FE Vision 21 concept, which aims to address and solve environmental issues and thus remove them as a constraint to coal's continued status as a strategic resource.

Research Facilities: The research facilities are adequate for the development of SOFC materials, and for studying fundamental processes occurring at electrode/electrolyte interfaces in fuel cells in order to overcome long term aging of the interfaces under high dc current loads. The laboratory is well equipped for the development of fabrication technologies that would lower the cost of SOFC manufacture. We recommend greater attention to using state of the art sensor and monitoring technologies including lasers and fibre optics.

Research Management: Increased emphasis is being given to technology transfer to ensure timely fossil application assessment. Cooperative and collaborative ventures with industry are being pursued to transfer the technology and ensure commercial availability and enhancement of U.S. industrial technology competitiveness in FE materials. Should provide greater emphasis on early industry R&D participation, outreach activities to seek corporate partners, and cooperative process scale-ups or application evaluations.

PNNL was instrumental in creating the SECA, the Solid State Energy Conversion Alliance. SECA comprises government agencies, commercial developers, universities, and national

laboratories committed to the development of low-cost, high power density, solid state fuel cells for a broad range of applications. SECA is now being implemented as the highest priority element of the Office of Fossil Energy's Fuel Cell Systems program. The SECA initiative is being enabled by important contributions in science and engineering at PNNL. The laboratory has also provided the driving force behind SECA through leadership, focus, and integration.